

DETAILED ACTION

1. In response to communications filed on 7/9/2008, Applicant has amended claims 8, 13, 14-16, 18-19, 24, 35, 38-39, and 41-42; the following claims 1, 4-9, 12-22, 24, 26-28, and 35-42 are presented for examination.

EXAMINER'S AMENDMENT

2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Applicant's attorney Trevor Lind on 9/23/2008.

The application has been amended as follows:

1. (Currently Amended) A method for concealing data within a digital audio signal, the method comprising:

receiving a first data pattern of discrete values which are bits of a watermark and a second data pattern of discrete values which are bits of a covert message;

imposing a discrete value of the second data pattern over one or more discrete values of the first data pattern to generate a third data

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pattern, wherein the imposing is carried out by performing a Boolean operation with a discrete value of the second data pattern and multiple discrete values of the first data pattern;

processing the digital ~~data~~ audio signal into a series of bitframes, wherein each bitframe includes a set of frames, and wherein each frame includes a set of blocks; and

encoding the third data pattern into the digital audio signal, wherein a different bit of the watermark is encoded in each frame of at least one subject bitframe, and wherein a same bit of the covert message is encoded in each frame of the subject bitframe, wherein the same bit of the covert message is encoded in each frame of the subject bitframe at a different frequency with respect to each frame.

5. (Currently Amended) A method as recited in claim 1, wherein a pattern of discrete values may be encoded into the digital audio signal in one of multiple discrete states[[:]], and wherein the imposing comprises encoding one or more multiple values of the first data pattern into the digital audio signal into a state that indicates a single discrete value of the second data pattern.

6. (Canceled)

8. (Canceled)

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9. (Canceled)

12-14. (Canceled)

15. (Currently Amended) A method as recited in claim [[14]] 5, wherein the multiple discrete states are positive or negative modifications to magnitudes of one or more subbands in a frequency spectrum of a sample of the digital audio signal.

16-17. (Canceled)

18. (Currently Amended) A computer-readable storage medium having computer-executable instructions that, when executed by a computer, perform a method for concealing data within a digital signal, the method comprising:

receiving a first data pattern of discrete values which are bits of a watermark and a second data pattern of discrete values which are bits of a covert message;

imposing a discrete value of the second data pattern over one or more discrete values of the first data pattern to generate a third data pattern, wherein the imposing is carried out by performing a Boolean operation with a discrete value of the second data pattern and multiple discrete values of the first data pattern;

processing the digital signal into a series of bitframes, wherein each bitframe includes a set of frames, and wherein each frame includes a set of blocks; and

encoding the third data pattern into the digital signal, wherein a different bit of the watermark is encoded in each frame of at least one subject bitframe, and wherein a same bit of the covert message is encoded in each frame of the subject bitframe, wherein the same bit of the covert message is encoded in each frame of the subject bitframe at a different frequency with respect to each frame.

19. (Canceled)

20. (Currently Amended) An apparatus comprising:

a processor;

a covert-channel-encoder executable on the processor to:

receive a first data pattern of discrete values which are bits of a watermark and a second data pattern of discrete values which are bits of a covert message;

impose a discrete value of the second data pattern over one or more discrete values of the first data pattern to generate a third data pattern, wherein the imposition is carried out by performing a Boolean operation with a discrete value of the second data pattern

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and multiple discrete values of the first data pattern;

process ~~the~~ a digital signal into a series of bitframes, wherein each bitframe includes a set of frames, and wherein each frame includes a set of blocks, and encode the third data pattern into the digital signal, wherein a different bit of the watermark is encoded in each frame of ~~at least one subject bitframe~~ a plurality of bitframes of the digital signal, and wherein a same bit of the covert message is encoded in each frame of ~~the subject bitframe~~, wherein the same bit of the covert message is encoded in each frame of the respective bitframe at a different frequency with respect to each frame.

21-22. (Canceled)

24. (Canceled)

26-28. (Canceled)

35-42. (Canceled)

43. (New) The computer-readable storage medium as recited in claim 18, wherein the digital signal is selected from a group consisting of a digital audio signal, a digital video signal, a digital image signal, and a digital multimedia signal.

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44. (New) The apparatus of claim 20, wherein the plurality of bitframes are arranged in a particular order.

45. (New) The apparatus of claim 44, wherein the covert-channel encoder is executable on the processor to permute a respective set of values encoded in each of the plurality of bitframes such that the respective sets of values associated with the plurality of bitframes are arranged in a different order than the particular order of the plurality of bitframes.

46. (New) The apparatus of claim 45, wherein the digital signal includes a digital audio signal, and wherein permuting the respective sets of values of the plurality of bitframes comprises permuting values of the respective sets of values that are included in one or more particular subbands of frequencies within an audible spectrum.

47. (New) The apparatus of claim 20, wherein the third data pattern is encoded into the digital signal without increasing bandwidth necessary to carry the digital signal.

Allowable Subject Matter

3. Claims 1, 4, 5, 7, 15, 18, 20, and 43-47 are allowed.

Conclusion

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to CARL COLIN whose telephone number is (571)272-3862. The examiner can normally be reached on Monday through Thursday, 8:00-6:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nasser G. Moazzami can be reached on 571-272-4195. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Carl Colin/

Primary Examiner, Art Unit 2136

September 26, 2008